

Multi-SeaCam® User Manual

DeepSea Power & Light, Inc.

4033 Ruffin Rd., San Diego, CA 92123

Tel (858) 576-1261, Fax (858) 576-0219

E-mail info@deepsea.com, Web Page <http://www.deepsea.com>

Multi-SeaCam® Options:

The Multi-SeaCam® supports a variety of connectors, camera modules, depth ratings, and pin-outs. Underneath the front port is a label that identifies internal features, with the options for your specific camera checked off. These features and options are:

	MULTI-SEACAM® 1050	MULTI-SEACAM® 1060	MULTI-SEACAM® 2060
Model Description	Black & White Camera	Black & White Camera, Low Light	Color Camera
Video Format	-EIA U.S.-format -CCIR European- format	-EIA U.S.- format -CCIR European- format	-NTSC U.S.- format -PAL European- format
Depth Rating	-300m (990ft) Delrin -6000m (19,800ft) Titanium	-300m (990ft) Delrin -6000m (19,800ft) Titanium	-300m (990ft) Delrin -6000m (19,800ft) Titanium
Custom Pin-Out	Yes	Yes	Yes
Standard Pin-Out	1-Ground, 2-Power, 3-Video, 11-30 VDC	1-Ground, 2-Power, 3-Video 11-30 VDC	1-Ground, 2-Power, 3-Video 11-30 VDC

Camera Operations:

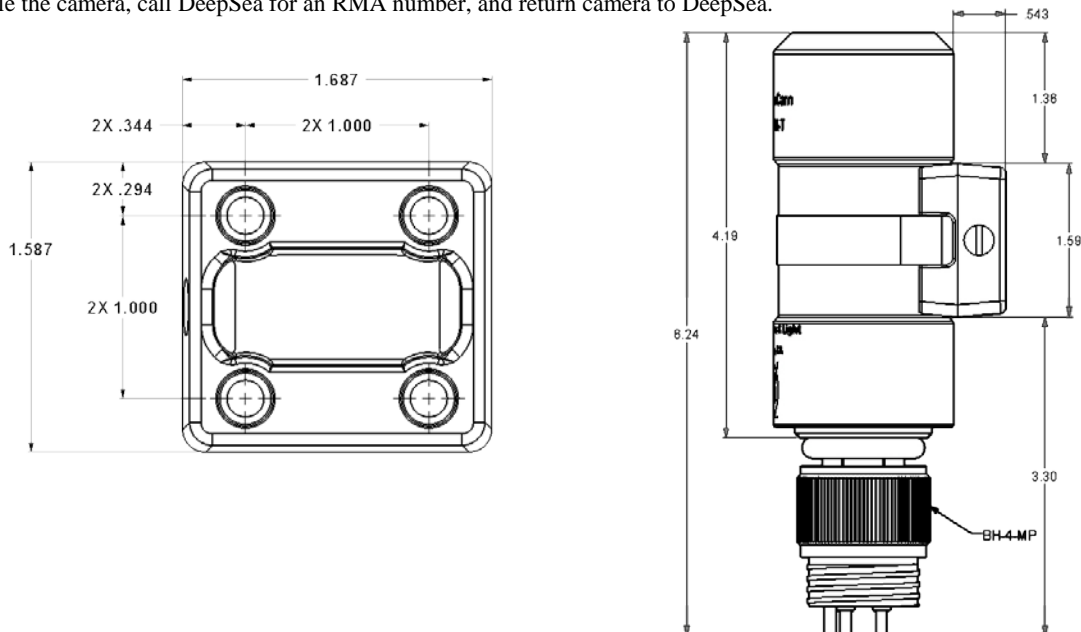
WARNING: Whenever AC or DC power is used in the vicinity of water, we **strongly** recommend that a Ground Fault Circuit Interrupt (GFCI) or other safety device be utilized to minimize the chance of electric shock due to a short circuit.

First, plug the 12-volt DC power supply into the GFCI (make sure the switch on the power supply is in the OFF position). Plug the red (positive 12V) and black (12V return (-)) banana plugs of the camera cable into their respective jacks on the power supply. Plug the BNC connector on this end of the cable into the monitor or VCR video-in jack (a BNC-to-RCA adapter may be required by the monitor/VCR in use). Lubricate the camera bulkhead connector with an appropriate silicone lubricant, spray recommended, and using a linear motion plug the female underwater connector on the other end of the cable into the male bulkhead connector on the back of the camera. Screw the locking sleeves together firmly (hand tight--do not use tools). The camera is now ready for operation; switch the power supply ON to power the camera. The camera draws approximately 300 mA of current during operation, and will work when supplied between 11-30 volts DC.

Camera Flooding Emergency Procedure:

WARNING: In certain rare instances, a pressure case can flood and then reseal itself which may result in internal pressurization. Additionally, if the power is applied while water is present inside the case, hydrogen and oxygen can be generated by electrolysis, forming an explosive mixture.

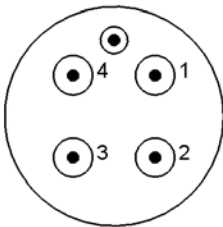
- 1) Immediately turn off the power to the unit.
- 2) Open the housing by removing the rear endcap-retaining ring. Grasp the rear endcap in one hand and the camera housing in the other. With care, separate the two components using a linear motion. If required gently twist components while separating.
- 3) Pour out any water trapped in the housing.
- 4) If the camera is completely flooded, rinse the internal components with clean fresh water in order to minimize contamination and corrosion.
- 5) Allow parts to dry in air or a vacuum chamber.
- 6) Loosely assemble the camera, call DeepSea for an RMA number, and return camera to DeepSea.



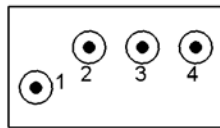
Multi-SeaCam® Specifications

	Multi <i>SeaCam</i> ® 1050	Multi <i>SeaCam</i> ® 1060	Multi <i>SeaCam</i> ® 2060
MECHANICAL	Black and white	Low light black & white	Low light color
Housing:	Delrin or titanium	Delrin or titanium	Delrin or titanium
Port:	Sapphire	Sapphire	Sapphire
Outer Diameter:	4.74 cm (1.87 in.)	4.74 cm (1.87 in.)	4.74 cm (1.87 in.)
Overall Length (w/o connector):	10.6 cm (4.19 in.)	10.6 cm (4.19 in.)	10.6 cm (4.19 in.)
Weight in Air-Delrin:	296 g (10.5 oz.)	296 g (10.5 oz.)	296 g (10.5 oz.)
Weight in Air-Titanium:	459 g (16 oz.)	459 g (16 oz.)	459 g (16 oz.)
Weight in Water-Delrin:	56 g (2 oz.)	56 g (2 oz.)	56 g (2 oz.)
Weight in Water-Titanium:	112 g (4 oz.)	112 g (4 oz.)	112 g (4 oz.)
OPTICAL			
Lens:	2.8 mm, f2.8	5 mm, f2.8	3.0 mm, f2.0
Focus:	Fixed focus, wide angle	Fixed focus	Fixed focus, wide angle
Depth of Field:	10 cm (4 in.) to infinity	30 cm (12 in.) to infinity	10 cm (4 in.) to infinity
Field of View in Air:	106 deg. (H) x 78 deg. (V) x 149 deg. (D)	77 deg. (H) x 56 deg. (V) x 98 deg. (D)	95 deg. (H) x 75 deg. (V) x 130 deg. (D)
Field of View in Water:	77 deg. (H) x 59 deg. (V) x 98 deg. (D)	57 deg. (H) x 45 deg. (V) x 71 deg. (D)	75 deg. (H) x 60 deg. (V) x 85 deg. (D)
VIDEO			
Image Sensor:	1/3-inch CCD image sensor	1/2-inch CCD image sensor	1/3-inch CCD image sensor
Number of Pixels:	537 (H) x 505 (V) (EIA); 537 (H) x 595 (V) (CCIR)	811 (H) x 508 (V) (EIA); 795 (H) x 596 (V) (CCIR)	768 (H) x 494 (V) (NTSC); 752 (H) x 582 (V) (PAL)
Resolution:	400+ TV lines horizontal	570 TV lines horizontal	460 TV lines horizontal
Scene Illumination:	0.27 Lux at f2.8	0.01 Lux at f2.8	1.1 Lux at f2.0
Signal to Noise:	More than 45 dB (AGC off)	46 dB (AGC off)	More than 45 dB
Video Output:	1.0 volt peak-to-peak into 75 ohm	1.0 volt peak-to-peak into 75 ohm	1.0 volt peak-to-peak into 75 ohm
Video Format:	EIA (RS 170), CCIR	EIA (RS 170), CCIR	NTSC, PAL, composite standard
ELECTRICAL			
Power:	11-30 volts DC	11-30 volts DC	11-30 volts DC
Current:	110 mA	160 mA	200 mA
Connector:	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508/2008; Burton: 5507-1508/2008; Call for others	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508/2008; Burton: 5507-1508/2008; Call for others	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508/2008; Burton: 5507-1508/2008; Call for others
ENVIRONMENTAL			
Depth:	Delrin: 300 meters Titanium: 6,000 meters	Delrin: 300 meters Titanium: 6,000 meters	Delrin: 300 meters Titanium: 6,000 meters
Operating Temperature:	-20 deg. C to +40 deg. C	-10 deg. C to +40 deg. C	-30 deg. C to +40 deg. C
Storage Temperature:	-30 deg. C to +70 deg. C	-30 deg. C to +70 deg. C	-30 deg. C to +70 deg. C

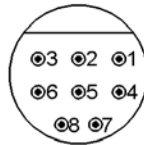
Pin Out:
View looking at Bulkhead connector on the back of the camera



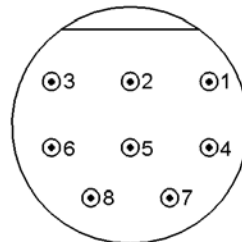
BH4MP
1 = Ground
2 = Power
3 = Video
4 = Not Used



LPBH4MP
1 = Ground
2 = Power
3 = Video
4 = Not Used



**IE55-1508-BCR
or B5507-1508**
1 = Ground
2 = Power
3 = Video
4 = Not Used
5 = Not Used
6 = Not Used
7 = Not Used
8 = Not Used



**IE55-2008-BCR
or B5507-2008**
1 = Ground
2 = Power
3 = Video
4 = Not Used
5 = Not Used
6 = Not Used
7 = Not Used
8 = Not Used



MSSJ-9-BCR
1 = Power
2 = Ground
3 = Video
4 = Not Used
5 = Not Used
6 = Not Used
7 = Not Used
8 = Not Used
9 = Not Used



Specifications subject to change without notice

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